FORM PTO-1390 (REV 10-94) — U S DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371

ATTORNEY'S DOCKET NUMBER: 9320.123USWO

U S APPLICATION NO (If known, see 37 C F R 1 5): Unknown 09/787781

INTERNATIONAL APPLICATION NO.	INTERNATIONAL FILING DATE	PRIORITY DATE CLAIMED
PCT/FR99/02269	September 23, 1999	September 23, 1998

TITLE OF INVENTION

METHOD AND SYSTEM FOR PRODUCING A SUBSTANCE OR A SIGNAL WITH A COAGULATING OR ANTICOAGULANT EFFECT

APPLICANT(S) FOR DO/EO/US

BENVENISTE et al.

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. [X] This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. [ ] This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. [X] This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(l).
4. [X] A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. [X] A copy of the International Application as filed (35 U.S.C. 371(c)(2))
   a. [X] is transmitted herewith (required only if not transmitted by the International Bureau)
   b. [X] has been transmitted by the International Bureau.
   c. [ ] is not required, as the application was filed in the United States Receiving Office (RO/US)
6. [X] A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. [X] Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
   a. [ ] are transmitted herewith (required only if not transmitted by the International Bureau).
   b. [ ] have been transmitted by the International Bureau.
   c. [ ] have not been made; however, the time limit for making such amendments has NOT expired.
   d. [X] have not been made and will not be made.
8. [ ] A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. [X] An oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4)).
10. [X] A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11. to 16. below concern document(s) or information included:

11. [X] An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. [ ] An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. [X] A FIRST preliminary amendment.
    [ ] A SECOND of SUBSEQUENT preliminary amendment.
14. [ ] A substitute specification.
15. [ ] A change of power of attorney and/or address letter.
16. [X] Other items or information: International Preliminary Examination Report; International Search Report; Front Page of PCT appln as filed; Translation of Amended Claims; Form 1449 and cited references

U.S. APPLICATION NO. (If known, see 37 C F R. 1 5)	INTERNATIONAL APPLICATION NO	ATTORNEY'S DOCKET NUMBER
Unknown 09/787781	PCT/FR99/02269	9320.123USWO

17. [X] The following fees are submitted:	CALCULATIONS PTO USE ONLY
BASIC NATIONAL FEE (37 CFR 1.492(a) (1)-(5)):	
Search Report has been prepared by the EPO or JPO **$860.00**	
International preliminary examination fee paid to USPTO (37 CFR 1.492(a)(1)) **$690.00**	
No international preliminary examination fee paid to USPTO (37 CFR 1.482) but international search fee paid to USPTO (37 CFR 1.445(a)(2)) **$710.00**	
Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(3)) paid to USPTO **$1000.00**	
International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(2)-(4) **$100.00**	

ENTER APPROPRIATE BASIC FEE AMOUNT =				**$860.00**	
Surcharge of **$130.00** for furnishing the oath or declaration later than [ ] 20 [ ] 30 months from the earliest claimed priority date (37 CFR 1.492(e)).				**$0**	
CLAIMS	NUMBER FILED		NUMBER EXTRA	RATE	
Total claims	42	-20 =	22	X **$18.00**	**$396.00**
Independent claims	6	-3 =	3	X **$80.00**	**$240.00**
MULTIPLE DEPENDENT CLAIM(S) (if applicable)				+ **$260.00**	**$0**
TOTAL OF ABOVE CALCULATIONS =					**$1496.00**
Reduction by 1/2 for filing by small entity, if applicable. Small entity status is claimed pursuant to 37 CFR 1.27					**$0**
SUBTOTAL =					**$1496.00**
Processing fee of **$130.00** for furnishing the English translation later than [ ] 20 [ ] 30 months from the earliest claimed priority date (37 CFR 1.492(f). +					**$0**
TOTAL NATIONAL FEE =					**$1496.00**
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). $40.00 per property +					**$0**
TOTAL FEES ENCLOSED =					**$1496.00**
				Amount to be: refunded	**$0**
				charged	**$0**

a. [X] Check(s) in the amount of $1496.00 to cover the above fees is enclosed.

b. [ ] Please charge my Deposit Account No. _____ in the amount of $ _____ to cover the above fees. A duplicate copy of this sheet is enclosed.

c. [X] The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 13-2725.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO
John J. Gresens
MERCHANT & GOULD
P.O. Box 2903
Minneapolis, MN 55402-0903

SIGNATURE: 

NAME: John J. Gresens

REGISTRATION NUMBER: 33,112

S/N unknown PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	BENVENISTE et al.	Serial No.:	unknown
Filed:	concurrent herewith	Docket No.:	9320.123USWO
Title:	METHOD AND SYSTEM FOR PRODUCING A SUBSTANCE OR A SIGNAL WITH A COAGULATING OR ANTICOAGULANT EFFECT		

CERTIFICATE UNDER 37 CFR 1.10
'Express Mail' mailing label number: EL658339258US
Date of Deposit: March 21, 2001

I hereby certify that this correspondence is being deposited with the United States Postal Service 'Express Mail Post Office To Addressee' service under 37 CFR 1.10 on the date indicated above and is addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.

By: Brant Miles
Name: ~~Brian Maharaj~~ Brant M. Miles

PRELIMINARY AMENDMENT

Box PCT
Assistant Commissioner for Patents
Washington, D. C. 20231

Dear Sir:

In connection with the above-identified application filed herewith, please enter the following preliminary amendment, which is based on the Article 34.2 amendments, based on claims amended in prosecution of the international application and published in the International Preliminary Examination Report, a copy of which is enclosed herewith (marked-up copy attached):

IN THE ABSTRACT

Insert the attached Abstract page into the application as the last page thereof.

IN THE SPECIFICATION

A courtesy copy of the present specification is enclosed herewith. However, the World Intellectual Property Office (WIPO) copy should be relied upon if it is already in the U.S. Patent Office.

IN THE CLAIMS

Please amend the following claims:

8. (Amended) Method according to Claim 6, in which the sensitive biological system is blood or plasma to which said signal is applied by means of a transducer-transmitter.

9. (Amended) Method according to Claim 6, in which the sensitive biological system is an animal, in particular a rabbit, which has been administered, especially under the tongue, with a substance, in particular water, treated by said signal by means of a transducer-transmitter.

10. (Amended) Application of the method according to Claim 6 to the control of the production of homeopathic products.

19. (Amended) Signal, in particular an electric or electromagnetic signal, having a coagulating or anticoagulant effect,

said signal being obtained by means of the method according to Claim 11, from a source substance having a coagulating effect, in particular Ca^{++} ions, or an anticoagulant effect, in particular heparin,

said signal being characterised in that a biological control system reacts, after direct or indirect application of said signal, in conformity with the coagulating or anticoagulant activity of the source substance from which the signal is issued.

22. (Amended) Application of the signal according to Claim 19, directly or indirectly through the intermediary of a receptor material,

- for the treatment of thromboembolism

or

- for the scanning of coagulation.

23. (Amended) Method for testing a signal having a coagulating or anticoagulant effect,

said signal being obtained by means of the method according to Claim 11, from a source substance having a coagulating effect, in particular Ca^{++} ions, or an anticoagulant effect, in particular heparin,

said method comprising the stage of applying said signal, directly or indirectly, to a biological test system and of verifying that the biological test system reacts in conformity with the coagulating or anticoagulant activity of the source substance from which the signal is issued.

26. (Amended) Application of the method according to Claim 23 to the control of production of homeopathic products.

Please add the following new claims:

27. (New) Method according to Claim 7, in which the sensitive biological system is blood or plasma to which said signal is applied by means of a transducer-transmitter.

28. (New) Method according to Claim 7, in which the sensitive biological system is an animal, in particular a rabbit, which has been administered, especially under the

tongue, with a substance, in particular water, treated by said signal by means of a transducer-transmitter.

29. (New) Signal, in particular an electric or electromagnetic signal, having a coagulating or anticoagulant effect,

said signal being obtained by means of the method according to Claim 12, from a source substance having a coagulating effect, in particular Ca^{++} ions, or an anticoagulant effect, in particular heparin,

said signal being characterised in that a biological control system reacts, after direct or indirect application of said signal, in conformity with the coagulating or anticoagulant activity of the source substance from which the signal is issued.

30. (New) Signal, in particular an electric or electromagnetic signal, having a coagulating or anticoagulant effect,

said signal being obtained by means of the method according to Claim 13, from a source substance having a coagulating effect, in particular Ca^{++} ions, or an anticoagulant effect, in particular heparin,

said signal being characterised in that a biological control system reacts, after direct or indirect application of said signal, in conformity with the coagulating or anticoagulant activity of the source substance from which the signal is issued.

31. (New) Signal, in particular an electric or electromagnetic signal, having a coagulating or anticoagulant effect,

said signal being obtained by means of the method according to Claim 14, from a source substance having a coagulating effect, in particular Ca^{++} ions, or an anticoagulant effect, in particular heparin,

said signal being characterised in that a biological control system reacts, after direct or indirect application of said signal, in conformity with the coagulating or anticoagulant activity of the source substance from which the signal is issued.

32. (New) Signal, in particular an electric or electromagnetic signal, having a coagulating or anticoagulant effect,

said signal being obtained from the system according to Claim 15, from a source substance having a coagulating effect, in particular Ca^{++} ions, or an anticoagulant effect, in particular heparin,

said signal being characterised in that a biological control system reacts, after direct or indirect application of said signal, in conformity with the coagulating or anticoagulant activity of the source substance from which the signal is issued.

33. (New) Signal, in particular an electric or electromagnetic signal, having a coagulating or anticoagulant effect,

said signal being obtained from the system according to Claim 16, from a source substance having a coagulating effect, in particular Ca^{++} ions, or an anticoagulant effect, in particular heparin,

said signal being characterised in that a biological control system reacts, after direct or indirect application of said signal, in conformity with the coagulating or anticoagulant activity of the source substance from which the signal is issued.

34. (New) Signal, in particular an electric or electromagnetic signal, having a coagulating or anticoagulant effect,

said signal being obtained from the system according to Claim 17, from a source substance having a coagulating effect, in particular Ca^{++} ions, or an anticoagulant effect, in particular heparin,

said signal being characterised in that a biological control system reacts, after direct or indirect application of said signal, in conformity with the coagulating or anticoagulant activity of the source substance from which the signal is issued.

35. (New) Signal, in particular an electric or electromagnetic signal, having a coagulating or anticoagulant effect,

said signal being obtained from the system according to Claim 18, from a source substance having a coagulating effect, in particular Ca^{++} ions, or an anticoagulant effect, in particular heparin,

said signal being characterised in that a biological control system reacts, after direct or indirect application of said signal, in conformity with the coagulating or anticoagulant activity of the source substance from which the signal is issued.

36. (New) Method for testing a signal having a coagulating or anticoagulant effect,

said signal being obtained by means of the method according to Claim 12, from a source substance having a coagulating effect, in particular Ca^{++} ions, or an anticoagulant effect, in particular heparin,

said method comprising the stage of applying said signal, directly or indirectly, to a biological test system and of verifying that the biological test system reacts in conformity with the coagulating or anticoagulant activity of the source substance from which the signal is issued.

37. (New) Method for testing a signal having a coagulating or anticoagulant effect,

said signal being obtained by means of the method according to Claim 13, from a source substance having a coagulating effect, in particular Ca^{++} ions, or an anticoagulant effect, in particular heparin,

said method comprising the stage of applying said signal, directly or indirectly, to a biological test system and of verifying that the biological test system reacts in conformity with the coagulating or anticoagulant activity of the source substance from which the signal is issued.

38. (New) Method for testing a signal having a coagulating or anticoagulant effect,

said signal being obtained by means of the method according to Claim 14, from a source substance having a coagulating effect, in particular Ca^{++} ions, or an anticoagulant effect, in particular heparin,

said method comprising the stage of applying said signal, directly or indirectly, to a biological test system and of verifying that the biological test system reacts in conformity with the coagulating or anticoagulant activity of the source substance from which the signal is issued.

39. (New) Method for testing a signal having a coagulating or anticoagulant effect,

said signal being obtained from the system according to Claim 15, from a source substance having a coagulating effect, in particular Ca^{++} ions, or an anticoagulant effect, in particular heparin,

said method comprising the stage of applying said signal, directly or indirectly, to a biological test system and of verifying that the biological test system reacts in conformity with the coagulating or anticoagulant activity of the source substance from which the signal is issued.

40. (New) Method for testing a signal having a coagulating or anticoagulant effect,

said signal being obtained from the system according to Claim 16, from a source substance having a coagulating effect, in particular Ca^{++} ions, or an anticoagulant effect, in particular heparin,

said method comprising the stage of applying said signal, directly or indirectly, to a biological test system and of verifying that the biological test system reacts in conformity with the coagulating or anticoagulant activity of the source substance from which the signal is issued.

41. (New) Method for testing a signal having a coagulating or anticoagulant effect,

said signal being obtained from the system according to Claim 17, from a source substance having a coagulating effect, in particular Ca^{++} ions, or an anticoagulant effect, in particular heparin,

said method comprising the stage of applying said signal, directly or indirectly, to a biological test system and of verifying that the biological test system reacts in conformity with the coagulating or anticoagulant activity of the source substance from which the signal is issued.

42. (New) Method for testing a signal having a coagulating or anticoagulant effect,

said signal being obtained from the system according to Claim 18, from a source substance having a coagulating effect, in particular Ca^{++} ions, or an anticoagulant effect, in particular heparin,

said method comprising the stage of applying said signal, directly or indirectly, to a biological test system and of verifying that the biological test system reacts in conformity with the coagulating or anticoagulant activity of the source substance from which the signal is issued.

REMARKS

The above preliminary amendment is made to remove multiple dependencies from claims 8, 9, 10, 19, 22, 23 and 26.

A new abstract page is supplied to conform to that appearing on the publication page of the WIPO application, but the new Abstract is typed on a separate page as required by U.S. practice.

Applicants respectfully request that the preliminary amendment described herein be entered into the record prior to calculation of the filing fee and prior to examination and consideration of the above-identified application.

If a telephone conference would be helpful in resolving any issues concerning this communication, please contact Applicants' primary attorney-of record, John J. Gresens (Reg. No. 33,112), at (612) 371.5265.

Respectfully submitted,

MERCHANT & GOULD P.C.
P.O. Box 2903
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(612) 332-5300

Dated: March 21, 2001

By ______________________
John J. Gresens
Reg. No. 33,112

JJG/tvm

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8. (Amended) Method according to [one or the other of Claims 6 or 7] Claim 6, in which the sensitive biological system is blood or plasma to which said signal is applied by means of a transducer-transmitter.

9. (Amended) Method according to [one or the other of Claims 6 or 7] Claim 6, in which the sensitive biological system is an animal, in particular a rabbit, which has been administered, especially under the tongue, with a substance, in particular water, treated by said signal by means of a transducer-transmitter.

10. (Amended) Application of the method according to [any one of Claims 6 to 9] Claim 6 to the control of the production of homeopathic products.

19. (Amended) Signal, in particular an electric or electromagnetic signal, having a coagulating or anticoagulant effect,

said signal being obtained by means of the method according to [any one of Claims 11 to 14 or from the system according to any one of Claims 15 to 18] Claim 11, from a source substance having a coagulating effect, in particular Ca^{++} ions, or an anticoagulant effect, in particular heparin,

said signal being characterised in that a biological control system reacts, after direct or indirect application of said signal, in conformity with the coagulating or anticoagulant activity of the source substance from which the signal is issued.

22. (Amended) Application of the signal according to [any one of Claims 19 to 21] Claim 19, directly or indirectly through the intermediary of a receptor material,

- for the treatment of thromboembolism

or

- for the scanning of coagulation.

23. (Amended) Method for testing a signal having a coagulating or anticoagulant effect,

said signal being obtained by means of the method according to [any one of Claims 11 to 14 or by means of the system according to any one of Claims 15 to 18] Claim 11, from a source substance having a coagulating effect, in particular Ca^{++} ions, or an anticoagulant effect, in particular heparin,

said method comprising the stage of applying said signal, directly or indirectly, to a biological test system and of verifying that the biological test system reacts in conformity with the coagulating or anticoagulant activity of the source substance from which the signal is issued.

26. (Amended) Application of the method according to [any one of Claims 23 to 25] Claim 23 to the control of production of homeopathic products.

ABSTRACT

TITLE: METHOD AND SYSTEM FOR PRODUCING A SUBSTANCE OR A SIGNAL WITH COAGULATING OR ANTICOAGULANT EFFECT

The invention concerns a method and a system for producing a signal, in particular an electric signal, or a substance having a coagulating or anticoagulant effect. The method is characterised in that it is based on a source substance with coagulating effect, in particular, Ca^{++} ions, or an anticoagulant affect, in particular heparin. The method consists in: transforming the electromagnetic field derived from said source substance located in the chamber, into a signal, in particular an electric signal, using a transducer-receiver sensing the electromagnetic field; applying to a receiving substance located in the chamber, in particular water or a water-ethanol mixture or homeopathic granules, said signal derived from said transducer-receiver, using a transducer-transmitter. After said treatment, the receiving substance, initially inactive, has a coagulating or anticoagulant effect.

METHOD AND SYSTEM FOR PRODUCING A SUBSTANCE OR A SIGNAL WITH A COAGULATING OR ANTICOAGULANT EFFECT

The present invention relates to a method and a system for producing a substance or a signal, in particular an electric signal, with a coagulating or anticoagulant effect. The invention also concerns such a substance or such a signal and their therapeutic effects. The invention also relates to a method and a system for testing the coagulating or anticoagulant effect of a substance or a signal.

It is known from the research works of Jacques Benveniste, in particular those described in the patent application WO 94/17406 published on 4 August 1994, that one can pick up, from a biological and/or chemical active element such as a chemical compound, a cell or a micro-organism, or from a substance containing this active element, an "electromagnetic signal characteristic of the biological and/or chemical activity or of the biological and/or chemical behaviour" of said substance and/or said active element contained in said substance.

It is also known that it is possible to transform, in particular by means of a transducer, such an electromagnetic signal into electric signals. In the following text one also means

by "electric signal characteristic of the biological and/or chemical activity or of the biological and/or chemical behaviour of a substance or of an active element contained in said substance" any electric signal derived by signal digitising and/or processing. In this expression the word "characteristic" is used in the meaning where the physical parameters of the electric signal are specific to the substance or to the active element contained in said substance. In other words, the application of this electric signal, via a transducer, to a biological control system makes it possible:

(i) to induce a biological and/or chemical activity on said biological control system relative to that of the substance of origin or the active element it contains;

(ii) to reveal a characteristic of the substance or the active element it contains, at the origin of said electric signal.

The patent application WO 94/17406 published on 4 August 1994, describes a method and a device for picking up "an electromagnetic signal characteristic of the biological and/or chemical activity or of a biological and/or chemical behaviour" from a biological and/or chemical active element such as a chemical compound, a cell or a micro-organism, or from a substance containing this active element such as a purified preparation, a biological sample, or a living being.

Since then the inventors have discovered that it is possible to improve the quality of the electromagnetic signal picked up as well as the reliability of the method for producing this signal, and that consequently it is possible to produce a characteristic electric signal appropriate for industrial applications. These developments have been described in the French application FR 98 12 058 deposited on 23 September 1998. If need be, the elements of this application, not yet published, and useful for understanding the present invention, will be extracted and inserted in the present application.

Method and system according to the invention for producing a substance with a coagulating or anticoagulant effect

The method according to the invention for producing a substance with a coagulating or anticoagulant effect, from a source substance with a coagulating effect, particularly Ca^{++} ions, or an anticoagulant effect, in particular heparin, comprises at least the following stages.

Stage 1 has the aim of transforming the electromagnetic field from said source substance into a signal, particularly a characteristic electric signal, by means of a transducer-receiver picking up said electromagnetic field.

Stage 2 has the aim of applying to a receptor substance, particularly water or a water-ethanol mixture or homeopathic granules, said signal coming from said transducer-receiver, by means of a transducer-transmitter.

It is to be noted that after the processing defined above, the receptor substance, initially inactive, shows a coagulating or anticoagulant activity. The receptor substance thus treated will hereinafter be called the "treated substance".

The concentration of active elements in the source substance, in particular the concentration of Ca^{++} ions having a coagulating effect or heparin having an anticoagulant effect, can be of the order of $1\mu M$. It can also be very low and reach $10^{-14}M$. The source substance can also be constituted of homeopathic products, diluted if necessary in water for injectable preparation.

Preferably in order to transform the electromagnetic field derived from said source substance into an electric signal:

- said source substance is placed in a zone submitted to an excitation field of electric, magnetic and/or electromagnetic nature and,
- the resulting fields of interaction between the excitation field and said source substance are transformed into

an electric signal, by means of a transducer-receiver picking up said resulting fields.

The system according to the invention for producing a substance with a coagulating or anticoagulant effect, from a source substance with a coagulating effect, in particular Ca^{++} ions, or an anticoagulant effect, in particular heparin, comprises at least the elements defined below.

A transducer-receiver receives the electromagnetic field derived from said source substance. Said transducer-receiver transforms said electromagnetic field into a signal, in particular an electric signal.

A transducer-transmitter makes it possible to apply the signal derived from said transducer-receiver to a receptor substance, in particular water or a water-ethanol mixture or homeopathic granules.

After the processing implemented by the system defined above, the receptor substance, initially inactive, shows a coagulating or anticoagulant activity.

Preferably, the system according to the invention further comprises an emitter generating an excitation field of electric, magnetic and/or electromagnetic nature in the zone where said source substance is situated. A transducer-receiver, receiving the fields resulting from the interaction of said excitation field and said source substance, transforms said resulting field into a signal, in particular an electric signal.

Substance according to the invention with a coagulating or anticoagulant effect

The invention also relates to a substance with a coagulating or anticoagulant effect. Said substance, in particular water or a water-ethanol mixture or homeopathic granules, is characterised in that it has been processed by means of an electric or electromagnetic signal derived from a source substance with coagulating effects, in particular Ca^{++} ions, or anticoagulant effects, particularly heparin.

The invention also concerns the therapeutic applications of such a substance. The substance according to the invention can be used in the treatment of thromboembolism. It can also be used to carry out scanning tests on coagulation.

Method according to the invention for testing the coagulating or anticoagulant effect of a substance

The invention also relates to a method for testing a substance with a coagulating effect, in particular Ca^{++} ions, or an anticoagulant effect, in particular heparin. The method comprises at least the following stages.

Stage 1 has the aim of transforming the electromagnetic field coming from said substance, into a signal, particularly an electric signal, by means of a transducer-receiver picking up said electromagnetic field.

Stage 2 has the aim of applying said signal from said transducer-receiver to a sensitive biological system, directly or indirectly.

Preferably, according to the invention, for transforming the electromagnetic field from said substance into an electric signal:

- said substance is placed in a zone submitted to an excitation field of electric, magnetic and/or electromagnetic nature,
- the fields resulting from the interaction of the excitation field and said source substance are transformed into an electric signal, by means of a transducer-receiver picking up said resulting fields.

Advantageously, the sensitive biological system can be blood or plasma to which said signal is applied by means of a transducer-transmitter. Advantageously, also, plasma rich in platelets can be used.

Advantageously, according to another embodiment variant, the sensitive biological system is an animal, particularly a rabbit, which is administered especially under

the tongue, with a substance, particularly water, treated by said signal by means of a transducer-transmitter.

The method according to the invention for testing the coagulating or anticoagulant effect of a substance can be applied to the control of homeopathic products.

Method and system according to the invention for producing a signal with a coagulating or anticoagulant effect

The method according to the invention for producing a signal, particularly an electric or electromagnetic signal, having a coagulating or anticoagulant effect, coming from a source substance having a coagulating effect, in particular Ca^{++} ions, or an anticoagulant effect, in particular heparin, comprises at least the stage of transforming the electromagnetic field coming from said source substance into a signal, in particular an electric signal, by means of a transducer-receiver picking up said electromagnetic field.

Preferably, in order to transform the electromagnetic field coming from said source substance into an electric signal:

- said source substance is placed in a zone submitted to an excitation field of electric, magnetic and/or electromagnetic nature,

- the fields resulting from the interaction of the excitation field and the source substance are transformed into a signal, in particular an electric signal, by means of a transducer-receiver picking up said resulting fields.

Preferably, also, the method according to the invention for producing a signal, in particular an electric or electromagnetic signal, having a coagulating or anticoagulant effect, further comprises the stage of controlling the correlations between, on the one hand, the signal derived from said transducer-receiver and, on the other hand, the coagulating or anticoagulant activity of said source substance, by applying, directly or indirectly, said signal to a biological control system and by verifying that said biological control

system reacts in conformity with the coagulating or anticoagulant activity of the source substance from which the signal is issued.

Advantageously, the biological control system is blood or plasma to which said signal is applied by means of a transducer-transmitter. Advantageously, one can also use plasma rich in platelets.

Advantageously, in another embodiment variant, the biological control system is an animal, particularly a rabbit, which is administered especially under the tongue, with a substance, particularly water, treated by said signal by means of a transducer-transmitter.

The present invention also relates to a system for producing a signal, in particular an electric or electromagnetic signal, having a coagulating or anticoagulant effect, coming from a source substance with a coagulating effect, particularly Ca^{++} ions, or an anticoagulant effect, in particular heparin. Said system comprises a transducer-receiver receiving the electromagnetic field coming from said source substance, said transducer-receiver transforming said electromagnetic field into a signal, particularly an electric signal.

Preferably, the system according to the invention further comprises an emitter generating an excitation field of electric, magnetic and/or electromagnetic nature in a zone where said source substance is situated. Said transducer-receiver, receiving the fields resulting from the interaction of said excitation field and said source substance, transforms said resulting fields into a signal, in particular an electric signal.

Preferably, also, the system according to the invention further comprises control means for controlling the correlations between, on the one hand, the signal coming from said transducer-receiver and, on the other hand, the coagulating or anticoagulant activity of said source substance. Said control means comprise a transducer-transmitter applying, directly or indirectly, said signal to a biological

control system. Said control means further comprise verification means for verifying that the biological control system reacts in conformity with the coagulating or anticoagulant activity of the source substance from which the signal is issued.

Advantageously, the biological control system is blood or plasma to which said signal is applied by means of said transducer-transmitter. Advantageously one can also use plasma rich in platelets.

Advantageously, in another embodiment variant, the control system is an animal, particularly a rabbit, which is administered, especially under the tongue, with a substance, particularly water, treated by said signal by means of a transducer-transmitter.

Signal according to the invention with a coagulating or anticoagulant effect

The present invention also concerns a signal as such, in particular an electric or electromagnetic signal, having a coagulating or anticoagulant effect. Said signal is obtained from a source substance having a coagulating effect, in particular Ca^{++} ions, or an anticoagulant effect, in particular heparin, by implementing the methods or systems described above. Said signal is characterised in that a biological control system reacts, after direct or indirect application of said signal, in conformity with the coagulating or anticoagulant activity of the source substance from which the signal is issued.

Advantageously, the biological control system is blood or plasma to which said signal is applied by means of said transducer-transmitter. Advantageously one can also use plasma rich in platelets.

Advantageously, in another embodiment variant, the biological control system is an animal, particularly a rabbit, which is administered especially under the tongue, with a

substance, particularly water, treated by said signal by means of a transducer-transmitter.

The invention also relates to the therapeutic applications of such a signal. The signal according to the invention can be used, directly or indirectly by the intermediary of a receptor substance, in the treatment of thromboembolism. It can also be used, directly or indirectly by the intermediary of a receptor substance, to carry out scanning tests on coagulation.

Method according to the invention for testing the coagulating or anticoagulant effect of a signal

The invention also relates to a method for testing a signal having a coagulating or anticoagulant effect. Said signal is obtained from a source substance having a coagulating effect, in particular Ca^{++} ions, or an anticoagulant effect, in particular heparin, by implementing the methods or systems described above. The method according to the invention comprises the stage of applying said signal, directly or indirectly, to a test biological system and verifying that the test biological system reacts in conformity with the coagulating or anticoagulant activity of the source substance from which the signal is issued.

Advantageously, the test biological system is blood or plasma to which said signal is applied by means of said transducer-transmitter. Advantageously one can also use plasma rich in platelets.

Advantageously, according to another embodiment variant, the test biological system is an animal, particularly a rabbit, which is administered especially under the tongue, with a substance, particularly water, treated by said signal by means of a transducer-transmitter.

The process according to the invention for testing the coagulating or anticoagulant effect of a signal can be applied to production control of homeopathic products.

Other characteristics and advantages of the invention will become clear by reading the description of the embodiment variants of the invention, given as an indicatory but non-limiting example, as well as by reading the examples of experiments having made it possible to validate the production method of a substance or a characteristic electric signal, having coagulating or anticoagulant effects. The description refers to the attached drawings in which:

- figure 1 shows a diagram of an example of an embodiment of a system making it possible to produce a characteristic electric signal, and to apply the characteristic electric signal thus produced to a receptor substance or to a biological control system or to a sensitive biological system,
- figure 1a shows a detailed view in perspective of a part of the production device for the electric signal, showing the excitation field emitter and the transducer-receiver receiving the resulting fields,
- figure 1b shows diagrammatically the type of microcomputer used either for generating the excitation fields, or for recording and transmitting under digitised form the characteristic electric signal,
- figure 1c shows a detailed view in perspective of a part of a transducer-transmitter intended to apply the characteristic electric signal to a receptor substance or to a biological control system or to a sensitive biological system.

General diagram of the system

With reference to figures 1, 1a, 1b and 1c, an example of a system will be described making it possible:

(i) to produce

- from Ca^{++} ions a characteristic electric signal with a coagulating effect, or
- from heparin a characteristic electric signal with an anticoagulant effect and

(ii) to apply such a characteristic signal to a receptor substance or to a biological control system or to a sensitive biological system.

The system comprises a device 10 for producing a characteristic electric signal of the biological and/or chemical activity or the biological and/or chemical behaviour of a substance 1 or an active element contained in said substance. In the case of the variant described with reference to figures 1, 1a, 1b and 1c, said substance 1 is:

- either Ca^{++} ions in solution at 1μM in water for injectable preparation (e.g. of the Biosédra brand),
- or heparin at the concentration of 2.5 IU/ml in the same quality of water.

The device 10, located in Paris, for example, produces a characteristic electric signal which is digitised after analog-digital conversion. The signal thus digitised is, in a known manner, transmitted remotely, for example by a computer communication network of the Internet type using radio links 11. The digitised signal thus transmitted is received by an applicator 12, located in New York for example, comprising emission means 13. The emission means 13 make it possible to apply the characteristic signal (after digital-analog conversion) to a receptor substance or to a biological control system or to a sensitive biological system.

The means envisaged for digitising and transmitting remotely the signal characteristic of the Ca^{++} ion or heparin are not indispensable to the embodiment of the invention. They have been described to emphasise the technical and commercial advantages linked to the possibility of producing a characteristic electric signal of the Ca^{++} ion or heparin having, like the source substances from which they are issued, coagulating and anticoagulant effects.

In the case of the variant described with reference to figures 1, 1a, 1b and 1c,

- the receptor substance is water or a water-ethanol mixture or homeopathic granules,

- the biological control system or the sensitive biological system is blood or plasma.

I The device for producing the signal characteristic of the Ca++ ion or of heparin

• The chamber

The device for producing the signal 10 comprises a chamber D, 2 provided with electric and magnetic shielding isolating it from parasitic fields from the environment. The shielded cylindrical chamber is composed of three superposed layers: copper, soft iron, permalloy, made from sheets 1 mm thick. The chamber has an internal diameter of 65 mm, and a height of 100 mm. The chamber is closed by a shielded lid 5. In the chamber 2 is placed a glass container 3 with the dimensions 10mm x 10mm x 45mm. This container 3 holds 1 ml of the substance 1. That is to say:

- either Ca^{++} ions in solution at 1μM in water for injectable preparation (e.g. of the Biosédra brand),

- or heparin at the concentration of 2.5 IU/ml in the same quality of water.

• The emitter of the specific excitation field

The emitter 4 is situated inside the chamber. It generates a specific excitation field of an electromagnetic nature. The emitter is supplied by a generator 14. The emitter 4 comprises a bobbin advantageously completed by a magnetic core in soft iron. The emitter bobbin 4 has an impedance of 300 ohms, an internal diameter of 6 mm, an external diameter of 16 mm, and a length of 6 mm. The magnetic core in soft iron is placed in contact with the external walls of the container 3. Said substance 1 is thus submitted to an excitation field emitted by the emitter 4. The generator 14 is designed to generate a low frequency signal especially square or sinusoidal low frequency signals, of pink noise or, advantageously, white noise. The

spectrum of the excitation signal supplying the emitter bobbin 4 corresponds closely to the spectrum of audible frequencies (20 Hz - 20,000 Hz). The generator 14 can be a generator of an analog signal of known type, using for example a read-only memory (ROM, PROM, EPROM, EEPROM) containing the digital signal of the desired noise. This memory is linked in a known way to a digital-analog converter. A microcomputer 14 can also be used, provided with a sound card 25 comprising a digital-analog converter 41. For example, one can use a computer 14 of the PC type, operating under the WINDOWS® 95 operating system from MICROSOFT and comprising, apart from the sound card 25 a microprocessor 27, an input/output interface 29, a controller 31 for mass storage 33 and a video interface 35 linked by one or several bus 37. The digital-analog converter 41 of the sound card 25 comprises an output terminal 8. The output terminal 8 of the sound card of the microcomputer 14 is linked to the input terminal 8' of the emitter 4, via an amplifier 15 whose specifications are the following: passband from 10 Hz to 20 kHz, gain 1 to 10, input sensitivity +/-1 V. Among the sound cards 25 which can be used, one can cite, for example the Soundblaster 16 card sold by the CREATIVE LABS Company.

- The transducer-receiver

The transducer-receiver 6, situated inside the chamber 2, receives the fields resulting from the interaction between said specific excitation field and said substance 1. The transducer-receiver 6 transforms said resulting fields into an electric signal. This electric signal arrives at the output terminals 9' of the transducer-receiver 6 under the form of a variable difference of potential or of an electric current of variable intensity. The transducer-receiver 6 comprises a bobbin with a soft iron core. This bobbin has an impedance of 300 ohms, an internal diameter of 6 mm, an external diameter of 16 mm, and a length of 6 mm. The magnetic core in soft iron is placed in contact with the external walls of the container 3.

Advantageously, the characteristic electric signal available at the output from the transducer-receiver 6 is amplified by an amplifier-preamplifier 16. The amplifier-preamplifier 16 has the following specifications: passband from 10 Hz to 20 kHz, gain 10 to 100 for an input sensitivity of +/-100 mV.

In the case of the embodiment variant described with reference to figures 1, 1a, 1b, 1c, an emitter 4 of an excitation field is envisaged. The use of such an emitter 4 is favourable for the production of a characteristic electric signal of the Ca^{++} ion or heparin. Nonetheless, one can also pick up, by means of a transducer-receiver 6, a characteristic signal of the Ca^{++} ion or heparin, without implementing an excitation field and without using the shielded chamber.

• Recording of the characteristic electric signal

•• Analog recording

The recording of the characteristic electric signal, or that of the electric signal derived after amplification or processing, can be carried out in analog by a signal recorder, in particular on magnetic tape, adapted to the frequencies of the characteristic electric signal at the output from the transducer-receiver 6. Since the passband used corresponds to the audio band, one can in particular use a tape recorder. The output terminal 9' of the transducer-receiver 6 is linked to the microphone input or to the line input of such a tape recorder. During play, the characteristic electric signal recorded is collected at an output terminal, in particular at the line output or at the loudspeaker output of the tape recorder.

•• Digital recording

Preferably, digital recording of the characteristic electric signal is carried out after analog-digital conversion of the said signal. In order to do this, a microcomputer 17 is used, provided with a signal acquisition card 25. The microcomputer 17 further comprises a microprocessor 27, an input/output interface 29, a controller 31 for mass storage 33 and a video

interface linked by one or several bus 37. For example, one can use a PC 17 type computer, operating on the WINDOWS®95 operating system from MICROSOFT. This microcomputer can be of the same type as that used to generate the excitation field. It can be the same microcomputer. The output 9' of the transducer-receiver 6 or the amplifier-preamplifier 16 is connected to the input 9 of the analog-digital converter 39 of the card 25 of the computer 17. Preferably, the analog-digital converter 39 has a resolution higher than 12 bits, and advantageously equal to 16 bits. Preferably, as well, the analog-digital converter 39 has a sampling frequency double the maximum frequency one wishes to be able to digitise, for example 44 kHz. One proceeds with acquisition of a characteristic electric signal for a length of time for example comprised between 1 and 60 seconds (for example 6 sec) and one saves the digital file in the mass storage 33, for example under the form of a sound file with the WAV format.

All links are made of shielded cable. All the apparatus is earthed.

• Processing of the characteristic electric signal

Advantageously, in order to process the characteristic electric signal or the derived signal, one uses the Matlab software from the company "The MathWorks".

The digital file, recorded as described above, can if needed undergo digital processing, as for example digital amplification for calibrating the signal level, filtering for eliminating unwanted frequencies, or be transformed into its spectrum by a discrete FOURIER transform, preferably by the algorithm of FFT "Fast Fourier Transform". The time length of the signal produced can be increased by repeating several times in a file a fragment or the totality of the sound file originally produced.

These processing means of the characteristic electric signal can be used to improve performances of said

characteristic electric signal. In the case of a first embodiment variant, a second transducer-receiver of the same type as that described above is envisaged. In the absence of said substance, this second transducer-receiver transforms the excitation field into an electric signal. This electric signal is subtracted by an opposition series connection to the signal derived from the first transducer-receiver. Thus one obtains a signal more representative of the interaction between the specific excitation field and the substance.

In the case of a second embodiment variant, the processing means take into account the characteristics of the specific excitation field and reprocess the characteristic electric signal in the following way. First of all one proceeds by calculating the spread of the power spectral density (PSD). Then this power spectral density is contracted by conserving only the frequency band ranging for example from 140 Hz to 14 kHz, and reconstituting a signal from this PSD and neutral phases, generated randomly for example, and finally calibrating the power of the signal thus produced. By neutral phases, one means phases not coming from a source substance presenting a biological activity.

In the case of the embodiment variant described with reference to figures 1, 1a, 1b, 1c, it is envisaged that the characteristic electric signal will be digitised, recorded and processed before applying it to a receptor substance or a biological control system or to a sensitive biological system. These operations are not indispensable for the exploitation of the characteristic electric signal of the Ca^{++} ion or heparin, even though they are favourable for the operation.

The characteristic electric signal available at the transducer-receiver 6 output and, if applicable, from the preamplifier 16 already in itself constitutes a product with possibilities for industrial applications. It will be made clear below for which applications it can be implemented in particular by means of an applicator 12 making it possible to

apply them to a receptor substance or a biological control system or a sensitive biological system.

II Remote transmission of the characteristic electric signal

The file of the characteristic electric signal of the Ca^{++} ion or heparin, recorded under digital form as has just been described, possibly after processing, can be transferred remotely by a computer communication network. This network can comprise radio links 11. The file of the characteristic electric signal of the Ca^{++} ion or heparin thus transmitted, is saved by the mass storage of a microcomputer 18. For example, one can use a computer of the PC type, operating on a WINDOWS®95 operating system from MICROSOFT. This microcomputer 18 can be of the same type as that used for generating the excitation field. The file of the digitised characteristic electric signal thus recorded by the remote microcomputer 18 can be exploited, in known ways, to produce an analog characteristic electric signal. The possibly processed file is transformed by a digital-analog converter 41 of the card 25 (or a separate card) of the computer 18. The digital-analog converter 41 delivers an analog electric signal to its output 8 characteristic of the biological activity of the Ca^{++} ion or the heparin from which it is issued. This analog electric signal can be transformed, as described below, into an electromagnetic field and applied to a receptor substance or a biological control system or to a sensitive biological system.

III The applicator of the characteristic signal of the Ca^{++} ion or heparin

With reference to figure 1c, an embodiment variant is described below of a system making it possible to apply the characteristic electric signal of the Ca^{++} ion or of heparin to a receptor biological system and to modify its chemical behaviour.

The container 50 holds the biological receptor system. In the case of the embodiment described with reference to figures 1, 1a, 1b, and 1c, the container 50 holds:

- a receptor substance such as water or a water-ethanol mixture or homeopathic granules, or
- a biological control substance or a sensitive biological system such as blood or plasma.

This container 50 is set in an electromagnetic field radiated by a transducer-transmitter 51, typically a bobbin. The bobbin, for example, has a length of 80 mm, an internal diameter of 50 mm, an external diameter of 55 mm, 300 turns of wire of 0.5 mm diameter and an impedance of 4 Ohms. The bobbin 51 is earthed. Without this representing any limiting character whatsoever, the bobbin 51 of the transducer-transmitter has a vertical axis making it possible to introduce the container 50 holding the receptor biological system. The input terminals 8' of this bobbin 51 are linked, in the case of the embodiment variant described, to the output 8 of the digital-analog converter 41 of the microcomputer 18 via an amplifier 19 with the following specifications: passband from 10 Hz to 20 kHz, gain 1 to 20, input sensitivity 250 mV, output power RMS 60W under 8 ohms, signal to noise ratio 80dB. The voltage at the terminals of the bobbin 51 has an amplitude of 10 Veff and the signal is applied for 10 minutes. The input terminals 8' of the applicator can also be, in the case of certain embodiment variants, directly connected to the output of the preamplifier 16 or to the output 8 of the digital-analog converter 41 of the computer 17.

Experiments

As an illustration of an embodiment variant,

- a method and a system according to the invention for producing a substance with a coagulating or anticoagulant effect,

- a substance according to the invention having a coagulating or anticoagulant effect,

- a method according to the invention for testing the coagulating or anticoagulant effect of a substance and its application to the production of homeopathic products,

- a method and a system according to the invention for producing a signal with a coagulating or anticoagulant effect,

- a method according to the invention for testing the coagulating/anticoagulant effect of a signal and its application to the production of homeopathic products,

the following experiments were carried out.

Effects of heparin and Ca^{++} ions on the coagulation of human or rabbit plasma

Heparin (25,000 IU/5ml, Laboratoire Choay, Sanofi Winthrop) is an anticoagulant acting by inhibiting the transformation of prothrombin into thrombin. The effect of heparin, at the site concerned, is immediate. It acts though the intermediary of a natural inhibitor called a cofactor, or antithrombin III.

Protamine sulphate (10,000 IU/10ml, Laboratoire Choay, Sanofi Winthrop) forms a salt with heparin and brings about a unit for unit suppression of the latter's anticoagulant effect. 1 ml of protamine solution neutralises the anticoagulant activity of 1000 units of heparin.

The Ca^{++} calcium ion is an ion indispensable for coagulation.

Source substances and materials used

The characteristic electric signals were recorded from samples of 1 ml of the following solutions:

- Ca^{++} in a 1μM solution in water for injectable preparation (for example the Biosédra brand),

- Mg^{++} in a 1μM solution in the same quality of water,

- heparin in solution at a concentration of 2.5 IU/ml in the same quality of water,

- heparin + protamine complex (respectively 2.5 IU/ml and 0.025 mg/ml), in solution in the same quality of water.

The material used is described with reference to figures 1a, 1b, 1c. The transducer-receiver 6 has the specifications as described. The transducer-transmitter 51, making it possible to apply the characteristic electric signal to a receptor substance or a biological control system or a sensitive biological system, is an electromagnetic bobbin with the following specifications:

- length: 80 mm,
- internal diameter: 50 mm,
- number of turns: 300 turns,
- impedance: 4 Ohms.

A coagulation evaluation was made using the following rating:

- high coagulation: 2
- moderate coagulation: 1
- no coagulation: 0

Protocol No.1. "In vitro" experiment: Coagulating or anticoagulant action of characteristic electric signals on Plasma Rich in Platelets (PRP)

This protocol has the aim of demonstrating that:

- on the one hand, the method and system described make it possible to produce a characteristic electric signal for the Ca^{++} ion and for heparin having respectively a coagulating or anticoagulant effect, and

- on the other hand, the method and system described make it possible to test an electric signal having respectively a coagulating or anticoagulant effect.

As biological control system making it possible to reveal the characteristic electric signal of the Ca^{++} ion and that of heparin, or as sensitive biological system making it possible to

test the coagulating or anticoagulant effect of an electric signal, rabbit (or human) plasma is used.

Blood from a "New-Zealand White" rabbit was taken from the artery of the ear and collected on an anticoagulant ACD (9 vol. blood / 1 vol. ACD) with the following composition: citric acid 0.8%, sodium citrate 2.2%, anhydrous glucose 2.23%.

After centrifuging (180 gm, 15 minutes) at ambient temperature, the blood separated into 3 layers: from top to bottom, the Plasma Rich in Platelets (PRP), the leukocyte layer and the sediment of red blood cells. The PRP is sampled by pipette by gentle aspiration.

Anticoagulant effect of a signal, anticoagulant effect of the characteristic electric signal of heparin

5 ml of PRP are placed in a tube 50 at the centre of an electromagnetic bobbin 51 to be exposed to the signal applied for 10 minutes with a voltage of 10V at the bobbin terminals.

Samples of 1 ml of PRP thus treated are placed in four tubes. Each tube is delivered with 20µl of Ca^{++} (50, 100, 150 and 200 mM) to obtain final concentrations of calcium in the PRP (of 1,2,3 and 4 mM). They are then left to incubate for 15 to 20 minutes.

The results obtained are presented in the table below:

Coagulation evaluation after 20 min	Without Signal application	Heparin Signal	Heparin + Protamine Complex Signal
Concentration in Ca^{++} (mM)	Av. ± 1SD(n)	Av. ± 1SD(n)	Av. ± 1SD(n)
1	0.00±0.00(5)	0.18±0.50(22)	0.42±0.74(21)
2	0.75±0.88(8)	0.25±0.53(24)	1.25±0.94(24)
3	1.75±0.70(8)	0.54±0.65(24)	1.91±0.40(24)
4	1.75±0.70(8)	1.41±0.88(24)	1.91±0.40(24)

n: number of values; Av: average; SD standard deviation

It can be seen that application of a heparin signal has an inhibiting effect on the coagulation of PRP. In the same conditions, the PRP non-exposed to a signal or the PRP exposed to a control signal, for example that of the heparin + protamine complex, has no inhibiting effect. This coagulation inhibiting effect is especially noticeable for a concentration in Ca^{++} comprised between 2 and 3 mM.

Thus, the biological control system constituted by plasma rich in platelets makes it possible to verify that the characteristic signal of heparin has an anticoagulant effect.

Thus, the sensitive biological system constituted by plasma rich in platelets makes it possible to test whether a characteristic signal has an anticoagulant effect.

Coagulating effect of a signal, coagulating effect of a characteristic electric signal of the calcium ion (Ca^{++})

1 ml of PRP is placed in a tube at the centre of an electromagnetic bobbin to be exposed to the signal applied for 10 minutes with a voltage of 10 V at the bobbin terminals.

The results obtained are presented in the table below:

	Without Signal application	Signal Calcium Ca^{++}	Signal Magnesium Mg^{++}
	Av. ± 1SD(n)	Av. ± 1SD(n)	Av. ± 1SD(n)
Coagulation evaluation after 60 min	0.00±0.00 (7)	1.57±0.75 (14)	0.00±0.00 (14)
Average retraction time	no retraction observed after 24hr (7)	<12hr (14)	no retraction observed after 24hr (14)

Interpretation

It can be seen that application of a calcium Ca^{++} signal has a PRP coagulating effect comparable to that of calcium Ca^{++} itself. It can be seen that application of a magnesium Mg^{++} signal does not induce any PRP coagulating effect.

Thus, the biological control system constituted by plasma rich in platelets makes it possible to verify that the characteristic signal of calcium Ca^{++} has a coagulating effect.

Thus, the sensitive biological system constituted by plasma rich in platelets makes it possible to test whether a characteristic signal has a coagulating effect.

Protocol No. 2. "In vivo" experiment; coagulating or anticoagulant action of characteristic electric signals

This protocol has the aim of demonstrating that:

- on the one hand, the method and system described make it possible

* to produce a characteristic electric signal for the Ca^{++} ion and for heparin, and

* to apply this electric signal to a receptor substance presenting after treatment respectively a coagulating or anticoagulant effect.

- on the other hand, the method and system described make it possible to test a substance having respectively a coagulating or anticoagulant effect.

As biological control system making it possible to reveal the coagulating or anticoagulant effect of the treated substance, or as sensitive biological system making it possible to test the coagulating or anticoagulant effect of a substance, one uses a rabbit which is administered, under the tongue, with water treated by means of a characteristic electric signal from the source substance.

The water used is water for injectable preparation from Biosédra in 10 ml ampoules.

1. The water (10 ml) is placed in a tube 50 at the centre of an electromagnetic bobbin 51. The water is exposed to the characteristic signal under consideration for 10 minutes with a voltage at the bobbin terminals of 10 V.

2. The water is then shaken for 15 seconds at the maximum speed of the vortex.

3. The rabbit is then administered under the tongue with 1 ml of the water thus treated by the characteristic signal under consideration.

Blood samples (1 ml) are taken in glass tubes from the ear artery, before administration, and then 1, 5, 10, 15 and 30 minutes after administration of the treated water.

The results obtained are presented in the table below:

	Coagulation evaluation	
	Heparin Signal	Heparin + Protamine Complex Signal
Sampling time	Av. ± 1SD(n)	Av. ± 1SD(n)
before administration	2.0 ± 0.0(3)	2.0 ± 0.0(3)
1 min.	0.0 ± 0.0(6)	2.0 ± 0.0(6)
5 min.	1.33 ± 1.03(6)	2.0 ± 0.0(6)

10 min.	1.33 ± 1.03(6)	2.0 ± 0.0(6)
15 min.	1.42 ± 0.97(7)	2.0 ± 0.0(6)
30 min.	2.00 ± 0.00(7)	2.0 ± 0.0(6)

Interpretation

It can be seen that administration of water treated by the characteristic signal of heparin has an inhibiting effect on blood coagulation for fifteen minutes. On the other hand, water treated by the signal of the heparin + protamine complex produces no inhibiting effect.

Thus, the biological control system constituted by an animal makes it possible to verify whether a receptor substance treated by the characteristic signal of heparin, particularly water, has an anticoagulant effect.

Thus, the sensitive biological system constituted by an animal makes it possible to test, by controlling the characteristic signal of a substance (for example the heparin + protamine complex), whether this substance has a coagulating or anticoagulant effect.

It is thus established that one can control the production of homeopathic products by the utilisation of substances with a known effect (such as heparin) and by checking that the homeopathic products (granules, solutions, etc.) produced from this substance also have, themselves, at the end of the chain, the corresponding activity (in the example described, that of anticoagulant).

The characteristic signal of a drug or a receptor substance treated by the characteristic signal of a drug has the same biological effects as the drug which is the source of the signal under consideration.

In the same way, similar anticoagulant effects on rabbit or human blood or plasma are obtained with hirudin. The signals coming from hirudin show a greater anticoagulant effect than those coming from heparin.

The results obtained with hirudin and rabbit blood are given below:

Coagulation evaluation after 20 min.	Hirudin Signal	Water Signal
Concentration in Ca^{2+} (mM)	working data	working data
1		

2	0.0	0.0
3	0.0	2.2
4	0.1	2.2

The results obtained with hirudin and human blood are given below:

Coagulation evaluation Ca^{2+} :7.5 mM	Hirudin Signal	Water Signal
Time (min.)	working data	working data
10	0.0	0.0
20	0.0	1.2
30	1.1	2.2
40	2.2	2.2
50	2.2	2.2
1 hr	2.2	2.2

5

CLAIMS

1. Method for producing a substance having a coagulating or anticoagulant effect, from a source substance having a coagulating effect, in particular Ca^{++} ions, or an anticoagulant effect, in particular heparin, said method comprising the stages:

- of transforming the electromagnetic field coming from said source substance into a signal, in particular an electric signal, by means of a transducer-receiver picking up said electromagnetic field,
- of applying to a receptor substance, in particular water or a water-ethanol mixture or homeopathic granules, said signal derived from said transducer-receiver, by means of a transducer-transmitter,

(in such a way that after the treatment defined above, the receptor substance, initially inactive, shows a coagulating or anticoagulant activity; said receptor substance thus treated being called hereinafter the "treated substance").

2. Method according to Claim 1 in which, for transforming the electromagnetic field coming from said source substance into an electric signal:

- said source substance is placed in a zone submitted to an excitation field of electric, magnetic and/or electromagnetic nature,

- The fields resulting from the interaction of the excitation field and said source substance are transformed into an electric signal by means of a transducer-receiver picking up said resulting fields.

3. System for producing a substance having a coagulating or anticoagulant effect, from a source substance having a coagulating effect, in particular Ca^{++} ions, or an anticoagulant effect, in particular heparin, said system comprising:

- an emitter generating an excitation field of electric, magnetic and/or electromagnetic nature in a zone where said source substance is situated,

- a transducer-receiver receiving the fields resulting from the interaction of said excitation field and said source substance, transforming said resulting fields into a signal, in particular an electric signal,

- a transducer-transmitter for applying said signal derived from said transducer-receiver to a receptor substance, in particular water or a water-ethanol mixture or homeopathic granules,

(in such a way that after the treatment described above, the receptor substance, initially inactive, presents a coagulating or anticoagulant activity; said receptor substance thus treated being called hereinafter the "treated substance").

4. Substance having a coagulating or anticoagulant effect, said substance:

- able to be in particular water or a water-ethanol mixture or homeopathic granules, and

- having been treated by means of an electric or electromagnetic signal coming from a source substance having coagulating effects, in particular Ca^{++} ions, or anticoagulant effects, in particular heparin.

5. Application of the substance according to Claim 4:

- to the treatment of thromboembolism,

or

- to the scanning of coagulation.

6. Method for testing a substance having a coagulating effect, in particular Ca^{++} ions, or an anticoagulant effect, in particular heparin, said method comprising the stages:

- of transforming the electromagnetic field coming from said substance into a signal, in particular an electric signal, by means of a transducer-receiver picking up said electromagnetic field,

- of applying, directly or indirectly, said signal derived from said transducer-receiver, to a sensitive biological system.

7. Method according to Claim 6 in which, for transforming the electromagnetic field coming from said substance into an electric signal:

- said substance is placed in a zone submitted to an excitation field of electric, magnetic and/or electromagnetic nature,

- the fields resulting from the interaction of the excitation field and said source substance are transformed into an electric signal, by means of a transducer-receiver picking up said resulting fields.

8. Method according to one or the other of Claims 6 or 7, in which the sensitive biological system is blood or plasma to which said signal is applied by means of a transducer-transmitter.

9. Method according to one or the other of Claims 6 or 7, in which the sensitive biological system is an animal, in particular a rabbit, which has been administered, especially under the tongue, with a substance, in particular water, treated by said signal by means of a transducer-transmitter.

10. Application of the method according to any one of Claims 6 to 9 to the control of the production of homeopathic products.

11. Method for producing a signal, in particular an electric or electromagnetic signal, having a coagulating or anticoagulant effect, from a source substance having a coagulating effect, in particular Ca^{++} ions, or an anticoagulant

effect, in particular heparin, said method comprising the stages:

- of placing said source substance in a zone submitted to an excitation field of electric, magnetic and/or electromagnetic nature,

- of transforming the fields resulting from the interaction of the excitation field and the source substance, into a signal, in particular an electric signal, by means of a transducer-receiver picking up said resulting fields.

12. Method according to Claim 11, further comprising the stage:

- of checking the correlations between, on the one hand the signal derived from said transducer-receiver and on the other hand, the coagulating or anticoagulant activity of said source substance by applying, directly or indirectly, said signal to a biological control system and by verifying that said biological control system reacts in conformity with the coagulating or anticoagulant activity of the source substance from which the signal is issued.

13. Method according to Claim 12, in which the biological control system is blood or plasma to which said signal has been applied by means of a transducer-transmitter.

14. Method according to Claim 13, in which the biological control system is an animal, in particular a rabbit, which is administered, especially under the tongue, with a substance, in particular water, treated by said signal by means of a transducer-transmitter.

15. System for producing a signal, in particular an electric or electromagnetic signal, having a coagulating or anticoagulant effect, from a source substance having a coagulating effect, in particular Ca^{++} ions, or an anticoagulant effect, in particular heparin, said system comprising:

- an emitter generating an excitation field of electric, magnetic and/or electromagnetic nature in a zone where said source substance is situated,

- a transducer-receiver receiving the fields resulting from the interaction of said excitation field and said source substance, transforming said resulting fields into a signal, especially an electric signal.

16. System according to Claim 15, further comprising:

- means of control for checking the correlations between, on the one hand, the signal derived from said transducer-receiver and on the other hand, the coagulating or anticoagulant activity of said source substance,

said means of control comprising a transducer-transmitter applying, directly or indirectly, said signal to a biological control system,

said control means further comprising verification means for verifying that the biological control system reacts in conformity with the coagulating or anticoagulant activity of the source substance from which the signal is issued.

17. System according to Claim 16, in which the biological control system is blood or plasma to which said signal is applied by means of said transducer-transmitter.

18. System according to Claim 17, in which the biological control system is an animal, in particular a rabbit, which is administered, especially under the tongue, with a substance, in particular water, treated by said signal by means of a transducer-transmitter.

19. Signal, in particular an electric or electromagnetic signal, having a coagulating or anticoagulant effect,

said signal being obtained by means of the method according to any one of Claims 11 to 14 or from the system according to any one of Claims 15 to 18, from a source substance having a coagulating effect, in particular Ca^{++} ions, or an anticoagulant effect, in particular heparin,

said signal being characterised in that a biological control system reacts, after direct or indirect application of said signal, in conformity with the coagulating or anticoagulant

activity of the source substance from which the signal is issued.

20. Signal according to Claim 19, in which the biological control system is blood or plasma to which said signal is applied by means of a transducer-transmitter.

21. Signal according to Claim 19, in which the biological control system is an animal, in particular a rabbit, which is administered, especially under the tongue, with a substance, in particular water, treated by said signal by means of a transducer-transmitter.

22. Application of the signal according to any one of Claims 19 to 21, directly or indirectly through the intermediary of a receptor material,

- for the treatment of thromboembolism

or

- for the scanning of coagulation.

23. Method for testing a signal having a coagulating or anticoagulant effect,

said signal being obtained by means of the method according to any one of Claims 11 to 14 or by means of the system according to any one of Claims 15 to 18, from a source substance having a coagulating effect, in particular Ca^{++} ions, or an anticoagulant effect, in particular heparin,

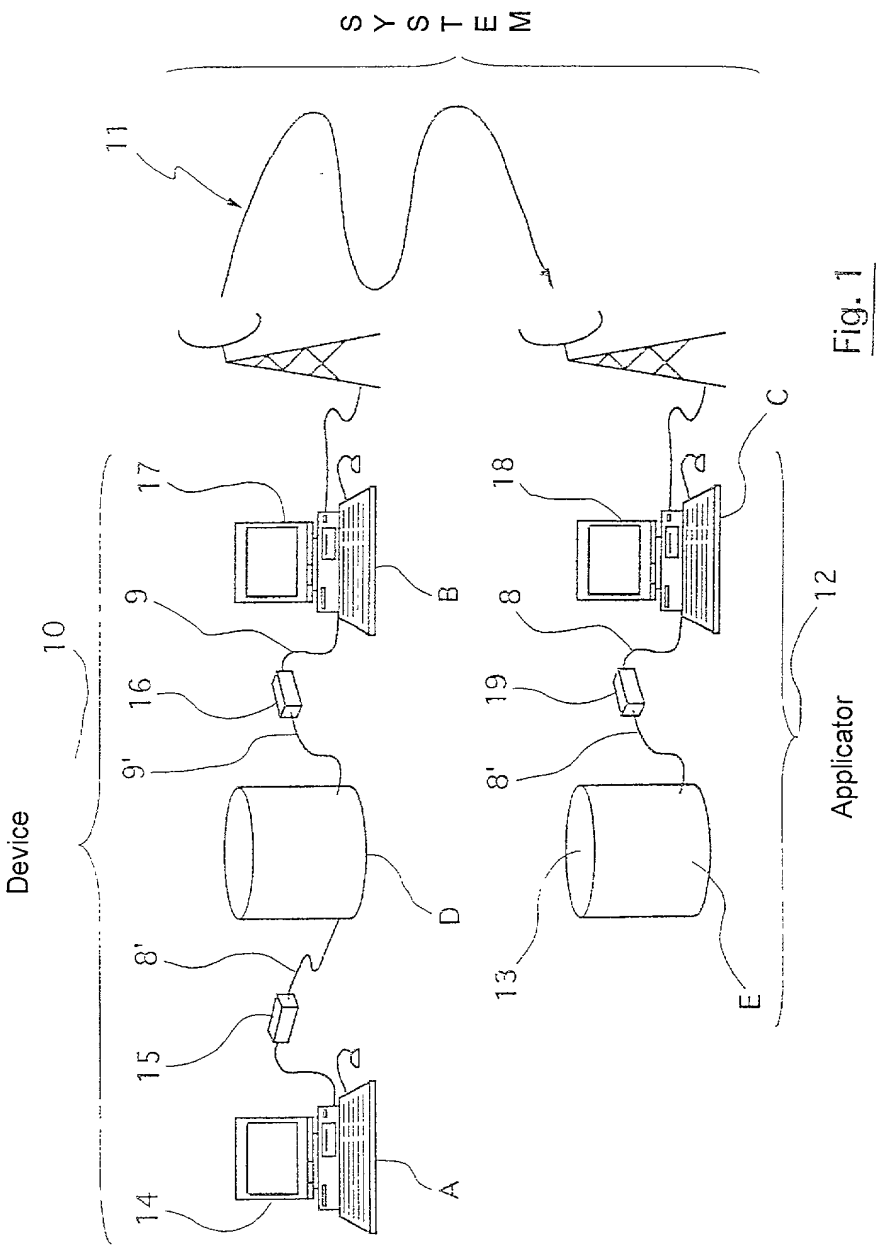
said method comprising the stage of applying said signal, directly or indirectly, to a biological test system and of verifying that the biological test system reacts in conformity with the coagulating or anticoagulant activity of the source substance from which the signal is issued.

24. Method according to Claim 23, in which the biological test system is blood or plasma to which said signal is applied by means of a transducer-transmitter.

25. Method according to Claim 23, in which the biological test system is an animal, in particular a rabbit, which is administered, especially under the tongue, with a

substance, in particular water, treated by said signal by means of a transducer-transmitter.

26. Application of the method according to any one of Claims 23 to 25 to the control of production of homeopathic products.


SYSTEM
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Device
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Applicator
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Fig. 1

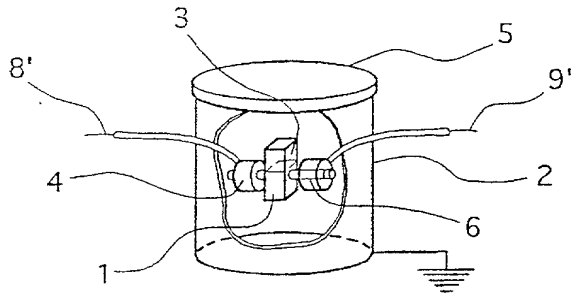


Fig. 1a

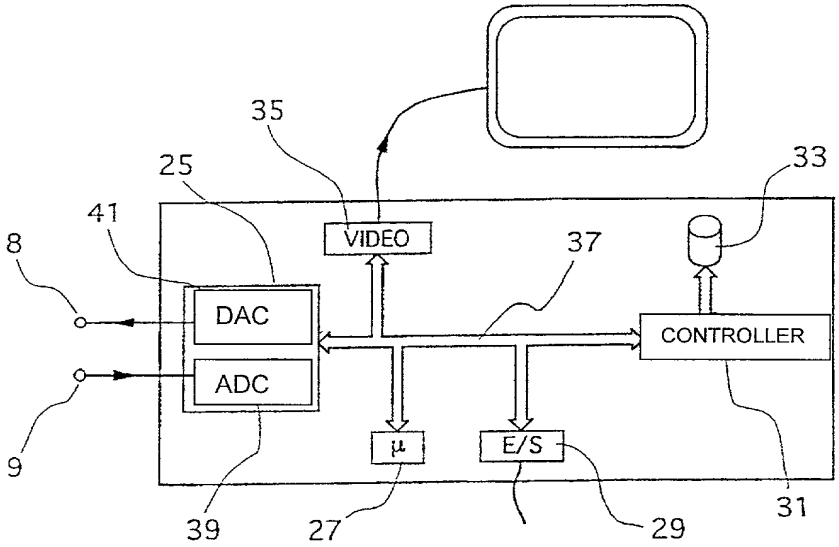


Fig. 1b

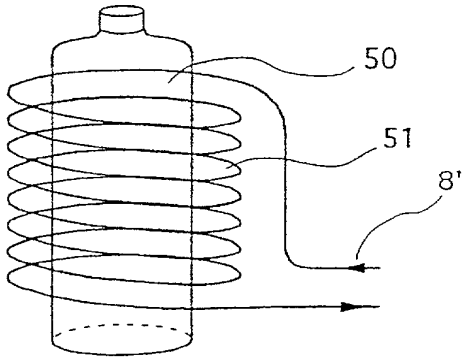
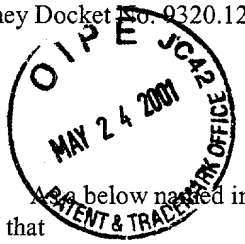


Fig. 1c

Attorney Docket No. 9320.123USWO



MERCHANT & GOULD P.C.

United States Patent Application

COMBINED DECLARATION AND POWER OF ATTORNEY

As a below named inventor I hereby declare that: my residence, post office address and citizenship are as stated below next to my name; that

I verily believe I am the original, first and sole inventor (if only one name is listed below) or a joint inventor (if plural inventors are named below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: METHOD AND SYSTEM FOR PRODUCING A SUBSTANCE OR A SIGNAL WITH COAGULATING OR ANTICOAGULANT EFFECT

The specification of which
a. ☐ is attached hereto
b. ☒ was filed on as application serial no. and was amended on (if applicable) (in the case of a PCT-filed application) described and claimed in international no. PCT/FR99/02269 filed September 23, 1999 and as amended on November 17, 2000 (if any), which I have reviewed and for which I solicit a United States patent.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I hereby claim foreign priority benefits under Title 35, United States Code, § 119/365 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on the basis of which priority is claimed:

a. ☐ no such applications have been filed.
b. ☒ such applications have been filed as follows:

FOREIGN APPLICATION(S), IF ANY, CLAIMING PRIORITY UNDER 35 USC § 119			
COUNTRY	**APPLICATION NUMBER**	**DATE OF FILING (day, month, year)**	**DATE OF ISSUE (day, month, year)**
France	98 12058	23 September 1998	
France	99 02329	22 February 1999	
ALL FOREIGN APPLICATION(S), IF ANY, FILED BEFORE THE PRIORITY APPLICATION(S)			
COUNTRY	**APPLICATION NUMBER**	**DATE OF FILING (day, month, year)**	**DATE OF ISSUE (day, month, year)**

I hereby claim the benefit under Title 35, United States Code, § 120/365 of any United States and PCT international application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, § 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application.

U.S. APPLICATION NUMBER	DATE OF FILING (day, month, year)	STATUS (patented, pending, abandoned)

I hereby claim the benefit under Title 35, United States Code § 119(e) of any United States provisional application(s) listed below:

U.S. PROVISIONAL APPLICATION NUMBER	DATE OF FILING (Day, Month, Year)

I acknowledge the duty to disclose information that is material to the patentability of this application in accordance with Title 37, Code of Federal Regulations, § 1.56 (reprinted below):

§ 1.56 Duty to disclose information material to patentability.

(a) A patent by its very nature is affected with a public interest. The public interest is best served, and the most effective patent examination occurs when, at the time an application is being examined, the Office is aware of and evaluates the teachings of all information material to patentability. Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section. The duty to disclose information exists with respect to each pending claim until the claim is canceled or withdrawn from consideration, or the application becomes abandoned. Information material to the patentability of a claim that is canceled or withdrawn from consideration need not be submitted if the information is not material to the patentability of any claim remaining under consideration in the application. There is no duty to submit information which is not material to the patentability of any existing claim. The duty to disclose all information known to be material to patentability is deemed to be satisfied if all information known to be material to patentability of any claim issued in a patent was cited by the Office or submitted to the Office in the manner prescribed by §§ 1.97(b)-(d) and 1.98. However, no patent will be granted on an application in connection with which fraud on the Office was practiced or attempted or the duty of disclosure was violated through bad faith or intentional misconduct. The Office encourages applicants to carefully examine:

(1) prior art cited in search reports of a foreign patent office in a counterpart application, and

(2) the closest information over which individuals associated with the filing or prosecution of a patent application believe any pending claim patentably defines, to make sure that any material information contained therein is disclosed to the Office.

(b) Under this section, information is material to patentability when it is not cumulative to information already of record or being made of record in the application, and

(1) It establishes, by itself or in combination with other information, a prima facie case of unpatentability of a claim; or

(2) It refutes, or is inconsistent with, a position the applicant takes in:

(i) Opposing an argument of unpatentability relied on by the Office, or

(ii) Asserting an argument of patentability.

A prima facie case of unpatentability is established when the information compels a conclusion that a claim is unpatentable under the preponderance of evidence, burden-of-proof standard, giving each term in the claim its broadest reasonable construction consistent with the specification, and before any consideration is given to evidence which may be submitted in an attempt to establish a contrary conclusion of patentability.

(c) Individuals associated with the filing or prosecution of a patent application within the meaning of this section are:

(1) Each inventor named in the application:

(2) Each attorney or agent who prepares or prosecutes the application; and

(3) Every other person who is substantively involved in the preparation or prosecution of the application and who is associated with the inventor, with the assignee or with anyone to whom there is an obligation to assign the application.

(d) Individuals other than the attorney, agent or inventor may comply with this section by disclosing information to the attorney, agent, or inventor.

(e) In any continuation-in-part application, the duty under this section includes the duty to disclose to the Office all information known to the person to be material to patentability, as defined in paragraph (b) of this section, which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

I hereby appoint the following attorney(s) and/or patent agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected herewith:

Albrecht, John W.	Reg. No. 40,481	Leonard, Christopher J.	Reg. No. 41,940
Ali, M. Jeffer	Reg. No. 46,359	Liepa, Mara E.	Reg. No. 40,066
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Carlson, Alan G.	Reg. No. 25,959	Phillips, Bryan K.	Reg. No. 46,990
Caspers, Philip P.	Reg. No. 33,227	Phillips, John B.	Reg. No. 37,206
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Clifford, John A.	Reg. No. 30,247	Pytel, Melissa J.	Reg. No. 41,512
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Daley, Dennis R.	Reg. No. 34,994	Reiland, Earl D.	Reg. No. 25,767
Dalglish, Leslie E.	Reg. No. 40,579	Roberts, Fred	Reg. No. 34,707
Daulton, Julie R.	Reg. No. 36,414	Samuels, Lisa A.	Reg. No. 43,080
DeVries Smith, Katherine M.	Reg. No. 42,157	Schmaltz, David G.	Reg. No. 39,828
DiPietro, Mark J.	Reg. No. 28,707	Schuman, Mark D.	Reg. No. 31,197
Edell, Robert T.	Reg. No. 20,187	Schumann, Michael D.	Reg. No. 30,422
Epp Ryan, Sandra	Reg. No. 39,667	Scull, Timothy B.	Reg. No. 42,137
Glance, Robert J.	Reg. No. 40,620	Sebald, Gregory A.	Reg. No. 33,280
Goggin, Matthew J.	Reg. No. 44,125	Skoog, Mark T.	Reg. No. 40,178
Golla, Charles E.	Reg. No. 26,896	Spellman, Steven J.	Reg. No. 45,124
Gorman, Alan G.	Reg. No. 38,472	Stoll-DeBell, Kirstin L.	Reg. No. 43,164
Gould, John D.	Reg. No. 18,223	Sumner, John P.	Reg. No. 29,114
Gregson, Richard	Reg. No. 41,804	Swenson, Erik G.	Reg. No. 45,147
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Hillson, Randall A.	Reg. No. 31,838	Vandenburgh, J. Derek	Reg. No. 32,179
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Kadievitch, Natalie D.	Reg. No. 34,196	Welter, Paul A.	Reg. No. 20,890
Karjeker, Shaukat	Reg. No. 34,049	Whipps, Brian	Reg. No. 43,261
Kettelberger, Denise	Reg. No. 33,924	Whitaker, John E.	Reg. No. 42,222
Keys, Jeramie J.	Reg. No. 42,724	Wickhem, J. Scot	Reg. No. 41,376
Knearl, Homer L.	Reg. No. 21,197	Williams, Douglas J.	Reg. No. 27,054
Kowalchyk, Alan W.	Reg. No. 31,535	Withers, James D.	Reg. No. 40,376
Kowalchyk, Katherine M.	Reg. No. 36,848	Witt, Jonelle	Reg. No. 41,980
Lacy, Paul E.	Reg. No. 38,946	Wu, Tong	Reg. No. 43,361
Larson, James A.	Reg. No. 40,443	Xu, Min S.	Reg. No. 39,536
Leon, Andrew J.	Reg. No. 46,869	Zeuli, Anthony R.	Reg. No. 45,255

I hereby authorize them to act and rely on instructions from and communicate directly with the person/assignee/attorney/firm/ organization who/which first sends/sent this case to them and by whom/which I hereby declare that I have consented after full disclosure to be represented unless/until I instruct Merchant & Gould P.C. to the contrary.

I understand that the execution of this document, and the grant of a power of attorney, does not in itself establish an attorney-client relationship between the undersigned and the law firm Merchant & Gould P.C., or any of its attorneys.

Please direct all correspondence in this case to Merchant & Gould P.C. at the address indicated below:

Merchant & Gould P.C.
P.O. Box 2903
Minneapolis, MN 55402-0903

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

2	**Full Name Of Inventor**	**Family Name** Benveniste	**First Given Name** Jacques	**Second Given Name**
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Signature of Inventor 201:			**Date:** May 2, 2001	

2	**Full Name Of Inventor**	**Family Name** Guillonnet	**First Given Name** Didier	**Second Given Name**
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Signature of Inventor 202:			**Date:** May 2, 2001	